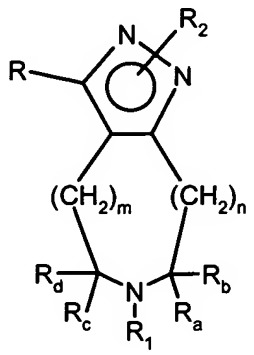
AMENDMENTS TO THE CLAIMS

1.(Original) A method for treating diseases caused by and/or associated with an altered protein kinase activity which comprises administering to a mammal in need thereof an effective amount of a pyrrolo-pyrazole or pyrazolo-azepine derivative represented by formula (I):



(I)

wherein R represents hydrogen or halogen atom, or an optionally substituted group selected from aryl C_2-C_6 alkenyl, (heterocyclyl) C_2-C_6 alkenyl, aryl C_2-C_6 alkynyl, or (heterocyclyl) C_2-C_6 alkynyl group, -R', -COR', -COOR', -CN, -CONR'R", -OR', -$S(O)_qR$', -$SO_2NR'R$", -$B(OR''')_2$, -SnR"", wherein R' and R", the same or different, independently represent hydrogen atom or an optionally further substituted straight or branched C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, saturated or unsaturated C_3-C_6 cycloalkyl, aryl, heterocyclyl, aryl C_1-C_6 alkyl or (heterocyclyl)C_1-C_6 alkyl; R''' represents hydrogen, C_1-C_6 alkyl, or R''', together with the two oxygen and the boron atoms, forms a saturated or unsaturated C_5-C_8 (hetero)cycloalkyl, optionally benzocondensed or substituted, and R"" represents C_1-C_6 alkyl;

R_1 represents hydrogen atom or an optionally substituted group selected from –R', -CH_2R', -COR', -COOR', -CONR'R", -C(=NH)NHR', -$S(O)_qR'$, or -$SO_2NR'R$", wherein R' and R" are as defined above;

R_2 represents hydrogen atom, -COR', -COOR', -CONR'R", -$S(O)_q$ R', -$SO_2NR'R$", C_1-C_6 alkyl or (heterocyclyl)C_1-C_6 alkyl group, wherein R' and R" are as defined above;

R_a, R_b, R_c and R_d, being the same or different, independently represent hydrogen atom, an optionally further substituted straight or branched C_1-C_6 alkyl, aryl, heterocyclyl, aryl C_1-C_6 alkyl, (heterocyclyl)C_1-C_6 alkyl or -CH_2OR' group, wherein R' is as above defined, or R_a and R_b and/or R_c and R_d, taken together with the carbon atom to which they are bonded, form an optionally substituted, saturated or unsaturated, C_3-C_6 cycloalkyl group; q is 0, 1 or 2; m and n, each independently, represents 0, 1 or 2, provided that m + n is 0 or equal to 2; or a pharmaceutically acceptable salt thereof.

2.(Original) The method of claim 1 wherein the disease caused by and/or associated with an altered protein kinase activity is selected from the group consisting of cancer, cell proliferative disorders, Alzheimer's disease, viral infections, auto-immune diseases and neurodegenerative disorders.

3.(Original) The method of claim 2 wherein the cancer is selected from carcinoma, squamous cell carcinoma, hematopoietic tumors of myeloid or lymphoid lineage, tumors of mesenchymal origin, tumors of the central and peripheral nervous system, melanoma, seminoma, teratocarcinoma, osteosarcoma, xeroderma pigmentosum, keratocanthoma, thyroid follicular cancer and Kaposi's sarcoma.

4.(Original) The method of claim 2 wherein the cell proliferative disorder is selected from the group consisting of benign prostate hyperplasia, familial adenomatosis polyposis, neuro-fibromatosis, psoriasis, vascular smooth cell proliferation associated with atherosclerosis, pulmonary fibrosis, arthritis glomerulonephritis and post-surgical stenosis and restenosis.

5.(Original) The method of claim 1 which provides tumor angiogenesis and metastasis inhibition.

6.(Original) The method of claim 1 further comprising subjecting the mammal in need thereof to a radiation therapy or chemotherapy regimen in combination with at least one cytostatic or cytotoxic agent.

7.(Original) The method of claim 1 wherein the mammal in need thereof is a human.

8.(Original) The method of claim 1 wherein in the compound of formula (I) R is H, I, Br, Cl, F, aryl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, -B(OR''')$_2$, -COR' , -CONR'R", -CN, SO_2R', OR', SR', and R_1 is H, C_1-C_6 alkyl, aryl, -COR', -CONR'R", -COOR', -SO_2R', or -SO_2NR'R", and R_2 is H, -COOR', -COR', -CONR'R", C_1-C_6 alkyl, -SO_2R', or -SO_2NR'R", (heterocyclyl) C_1-C_6 alkyl group , wherein R' and R", the same or different, are selected from hydrogen or optionally substituted straight or branched C_1-C_6 alkyl, aryl or aryl C_1-C_6 alkyl groups;

R_a ,R_b, R_c and R_d, the same or different, are selected from hydrogen or straight or branched C_1-C_3 alkyl or, taken together with the carbon atom to which they are bonded form a C_3-C_6 cycloalkyl group.

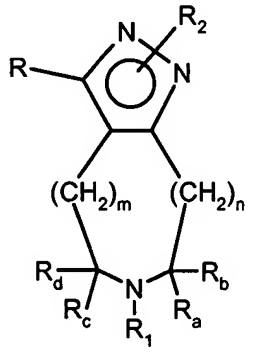
9.(Original) The method of claim 1 wherein, in the compound of formula (I), R is selected from aryl, -COR', -CONR'R", wherein R' and R", the same or different, are selected from hydrogen or optionally substituted straight or branched C_1-C_6 alkyl, aryl or aryl C_1-C_6 alkyl groups.

10.(Original) The method of claim 1 wherein, in the compound of formula (I), R_1 is selected from H, C_1-C_6 alkyl, aryl, -COR', -CONR'R", COOR', -SO_2R' or -SO_2NR'R", wherein R' and R", the same or different, are selected from hydrogen or optionally substituted straight or branched C_1-C_6 alkyl, aryl or aryl C_1-C_6 alkyl groups.

11.(Original) The method of claim 1 wherein, in the compound of formula (I), R_2 is H, -COOR', -CONR'R", C_1-C_6 alkyl, wherein R' and R", the same or different, are selected from hydrogen or optionally substituted straight or branched C_1-C_6 alkyl, aryl or aryl C_1-C_6 alkyl groups.

12.(Original) A method for inhibiting protein kinase activity which comprises contacting the said kinase with an effective amount of a compound of formula (I) as defined in claim 1.

13.(Original) A pyrrolo-pyrazole or pyrazolo-azepine derivative represented by formula (I):



(I)

wherein R represents hydrogen or halogen atom, or an optionally substituted group selected from aryl C_2-C_6 alkenyl, (heterocyclyl) C_2-C_6 alkenyl, aryl C_2-C_6 alkynyl, or (heterocyclyl) C_2-C_6 alkynyl group, -R', -COR', -COOR', -CN, -CONR'R", -OR', -$S(O)_q$R', -SO_2NR'R", -$B(OR'")_2$, -SnR"", wherein R' and R", the same or different, independently represent hydrogen atom or an optionally further substituted straight or branched C_1-C_6 alkyl, C_2-

C_6 alkenyl, C_2-C_6 alkynyl, saturated or unsaturated C_3-C_6 cycloalkyl, aryl, heterocyclyl, aryl C_1-C_6 alkyl or (heterocyclyl)C_1-C_6 alkyl; R''' represents hydrogen, C_1-C_6 alkyl, or R''', together with the two oxygen and the boron atoms, forms a saturated or unsaturated C_5-C_8 (hetero)cycloalkyl, optionally benzocondensed or substituted, and R'''' represents C_1-C_6 alkyl;

R_1 represents hydrogen atom or an optionally substituted group selected from –R', -CH_2R',-COR',-COOR',-CONR'R",C(=NH)NHR',-S(O)$_q$R',or-SO_2NR'R", wherein R' and R" are as defined above;

R_2 represents hydrogen atom, -COR', -COOR', -CONR'R", -S(O)$_q$ R', -SO_2NR'R", C_1-C_6 alkyl or (heterocyclyl)C_1-C_6 alkyl group, wherein R' and R" are as defined above;

R_a, R_b, R_c and R_d, being the same or different, independently represent hydrogen atom, an optionally further substituted straight or branched C_1-C_6 alkyl, aryl, heterocyclyl, aryl C_1-C_6 alkyl, (heterocyclyl)C_1-C_6 alkyl or -CH_2OR' group, wherein R' is as above defined, or R_a and R_b and/or R_c and R_d, taken together with the carbon atom to which they are bonded, form an optionally substituted, saturated or unsaturated, C_3-C_6 cycloalkyl group; q is 0, 1 or 2; m and n, each independently, represents 0, 1 or 2, provided that m + n is 0 or equal to 2 and with the following further provisos:

- when m and n are both 1, R is hydrogen atom or hydroxy group and R_a, R_b, R_c and R_d are all hydrogen atoms, then R_1 is not hydrogen atom, acetyl, benzyl or ethoxycarbonyl group;
- when m is 2 and n is 0, R, R_a, R_b, R_c and R_d are all hydrogen atoms, then R_1 is not hydrogen atom or ethoxycarbonyl group;
- when m and n are both 0, R, R_a, R_b, R_c and R_d are all hydrogen atoms, then R_1 is not hydrogen atom, phenyl-oxazoldinone, quinoline, pyridobenzoxazine or naphtyridine group;
- when m and n are both 0, R is propyl, R_a, R_b, R_c and R_d are all hydrogen atoms, then R_1 is not

phenyl-oxazoldinone group and

- when m and n are both 0, R is hydroxy, methyl or ethyl group and R_a, R_b, R_c and R_d are all hydrogen atoms, then R_1 is not a methoxycarbonyl group;

or a pharmaceutically acceptable salt thereof.

14.(Original) A compound of formula (I) according to claim 13 wherein R is H, I, Br, Cl, F, aryl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, -B(OR''')$_2$, -COR' , -CONR'R", -CN, SO_2R', OR', SR', and R_1 is H, C_1-C_6 alkyl, aryl, -COR', -CONR'R", -COOR', -SO_2R', or -SO_2NR'R", and R_2 is H, -COOR', -COR', -CONR'R", C_1-C_6 alkyl, -SO_2R', or -SO_2NR'R", (heterocyclyl) C_1-C_6 alkyl group , wherein R' and R", the same or different, are selected from hydrogen or optionally substituted straight or branched C_1-C_6 alkyl, aryl or aryl C_1-C_6 alkyl groups;

R_a ,R_b, R_c and R_d, the same or different, are selected from hydrogen or straight or branched C_1-C_3 alkyl or, taken together with the carbon atom to which they are bonded form a C_3-C_6 cycloalkyl group.

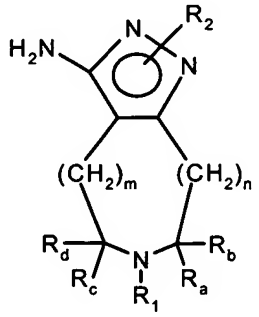
15.(Original) A compound of formula (I) according to claim 13 wherein R is selected from aryl, -COR', -CONR'R", wherein R' and R", the same or different, are selected from hydrogen or optionally substituted straight or branched C_1-C_6 alkyl, aryl or aryl C_1-C_6 alkyl groups.

16.(Original) A compound of formula (I) according to claim 13 wherein R_1 is selected from H, C_1-C_6 alkyl, aryl, -COR', -CONR'R", COOR', -SO_2R' or -SO_2NR'R", wherein R' and R", the same or different, are selected from hydrogen or optionally substituted straight or branched C_1-C_6 alkyl, aryl or aryl C_1-C_6 alkyl groups.

17.(Original) A compound of formula (I) according to claim 13 wherein R_2 is H, -COOR', -CONR'R", C_1-C_6 alkyl, wherein R' and R", the same or different, are selected from hydrogen or optionally substituted straight or branched C_1-C_6 alkyl, aryl or aryl C_1-C_6 alkyl groups.

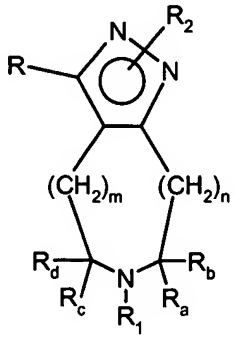
18.(Original) A process for preparing the compounds of formula (I) or the pharmaceutically acceptable salts thereof, as defined in claim 13, which process comprises:

a) submitting a compound of formula (II)



(II)

wherein R_1 is as defined in claim 13 but not hydrogen atom, and R_a, R_b, R_c, R_d, R_2, m and n are as defined in claim 13, to diazotation and subsequent appropriate quenching, thus obtaining a compound of formula (I)



(I)

wherein R_1 is as defined above but not hydrogen; R_a, R_b, R_c, R_d, R_2, m and n are as defined above, and R is hydrogen, iodine, bromine, chlorine or fluorine atom or a CN group;

b1) converting a thus obtained compound of formula (I) wherein R is I, Br, Cl into another compound of formula (I) wherein R is an optionally substituted aryl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, -SR', -OR' or -COR' wherein R' is as defined in claim 13;

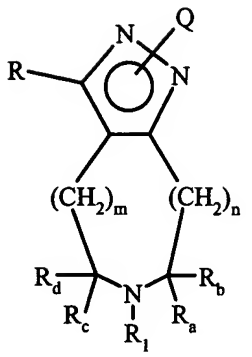
b2) converting a compound of formula (I) wherein R is hydrogen into another compound of formula (I) wherein R is -B(OR'")$_2$, -SnR"", -COOR', -COR', C_1-C_6 alkyl or iodine, wherein R', R'" and R"" are as defined in claim 13;

c) converting a compound of formula (I) wherein R is -B(OR'")$_2$ or -SnR"" as above defined into another compound of formula (I) wherein R is an optionally substituted aryl, C_2-C_6 alkenyl, C_2-C_6 alkynyl;

d) optionally converting a compound of formula (I) into another different compound of formula (I), and, if desired, converting a compound of formula (I) into a pharmaceutically acceptable salt thereof or converting a salt into the free compound (I).

19.(Currently Amended) A process for preparing a compound of formula (I) ~~as defined in~~ according to claim 13, which which process comprises:

either b1a) converting a compound of formula (I) into another compound of formula (I) wherein R has the meanings of claim 18 resulting from step b1 and R_1, R_a, R_b, R_c, R_d, m and n are as defined in claim 13, analogously to step b1 ~~described~~ defined in claim 18 and Pa) reacting the resultant compound of formula (I) wherein R, R_a, R_b, R_c, R_d, m and n are as defined above, R_1 is as described above but not hydrogen and R_2 is hydrogen, with a suitable solid support so as to obtain a compound of formula (III)



(III)

wherein R, R_a, R_b, R_c, R_d, m and n are as defined above, R_1 is as defined in claim 13 but not hydrogen, and Q is a solid support, or P) reacting a compound of formula (I) wherein R, R_a, R_b, R_c, R_d, m and n are as defined above, R_1 is as defined above but not hydrogen and R_2 is hydrogen, with a suitable solid support so as to obtain a compound of formula (III) as defined above and

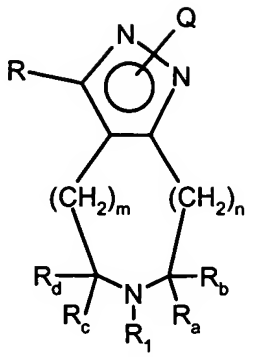
B) then, analogously to steps b1, b2, c and d ~~described~~ defined in claim 18, optionally converting a thus obtained compound of formula (III) into another compound of formula (III) wherein R has the meanings ~~reported~~ defined in claim 18 for steps b1 to d and R_1, R_a, R_b, R_c, R_d, m and n are as defined above;

[[D]] C) cleaving a compound of formula (III) so as to eliminate the solid support and to obtain the desired compound of formula (I);

[[E]] D) optionally converting a compound of formula (I) into another different compound of formula (I),

and, if desired, converting a compound of formula (I) into a pharmaceutically acceptable salt thereof or converting a salt into the free compound (I) as described above.

20.(Original) A compound of formula (III)



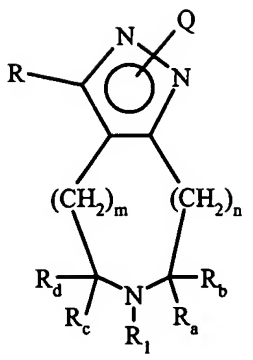
(III)

wherein R_1, R, R_a, R_b, R_c, R_d, m and n are as defined in claim 13, and Q is a solid support.

21.(Original) A compound of formula III according to claim 20 wherein the solid support that Q represents is a residue derived from a resin selected from the group consisting of isocyanate polystyrenic resin, 2-chloro-trityl chloride resin, trityl chloride resin, p-nitrophenyl carbonate Wang resin and the bromo-4-methoxyphenyl)methyl polystyrene.

22.(Currently Amended) A process for preparing a compound of formula (III) as defined in claim 20 ~~or 21~~, which process comprises:

either b1a) converting a compound of formula (I) into another compound of formula (I) wherein R ~~has the meanings of~~ is as defined in claim 19 resulting from step b1 and R_1, R_a, R_b, R_c, R_d, m and n are as defined in claim 13, analogously to step b1 described in claim 18 and Pa) reacting the resultant compound of formula (I) wherein R, R_a, R_b, R_c, R_d, m and n are as defined above, R_1 is as defined above but not hydrogen and R_2 is hydrogen, with a suitable solid support so as to obtain a compound of formula (III)



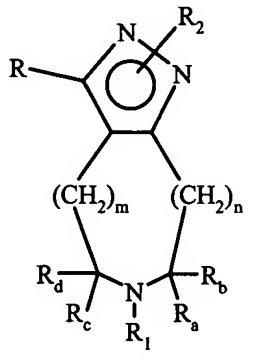
(III)

wherein R, R_a, R_b, R_c, R_d, m and n are as defined above, R_1 is as defined in claim 13 but not hydrogen, and Q is a solid support, or

[[P]] A) reacting a compound of formula (I) wherein R, R_a, R_b, R_c, R_d, m and n are as defined above, R_1 is as defined above but not hydrogen and R_2 is hydrogen, with a suitable solid support so as to obtain a compound of formula (III) as defined above and

B) then, analogously to steps b1, b2, c and d described in claim 18, optionally converting a thus obtained compound of formula (III) into another compound of formula (III) wherein R has the meanings ~~reported~~ as defined in claim 18 for steps b1 to d and R_1, R_a, R_b, R_c, R_d, m and n are as defined above.

23.(Currently Amended) A library of two or more compounds of formula (I):



(I)

wherein R, R_1, R_2 R_a, R_b, R_c, R_d m and n are as defined in claim 13, which can be obtained starting from one or more compound supported onto a solid support of the formula (III) as defined in claim 20 ~~or 21~~.

24.(Original) A compound of formula (I) according to claim 13 which is conveniently and unambiguously identified as per the coding system of tables I-III.

25.(Original) A pharmaceutical composition comprising a therapeutically effective amount of a compound of formula (I), as defined in claim 13, and at least one pharmaceutically acceptable carrier and/or diluent.

26.(Original) A pharmaceutical composition according to claim 24 further comprising one or more chemotherapeutic agents.

27.(Original) A product comprising a compound of formula (I) as defined in claim 13 or a pharmaceutical composition thereof as defined in claim 25, and one or more chemotherapeutic agents, as a combined preparation for simultaneous, separate or sequential use in anticancer therapy.

28.(Original) A compound of formula (I), as defined in claim 13, for use as a medicament.

29.(Original) Use of a compound of formula (I), as defined in claim 1, in the manufacture of a medicament with antitumor activity.